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CLAIMS

Having thus described my invention, what I claim as new and desire to secure by Letters
Patent is as follows:

- 1. An optical system comprising
- a doubly telecentric optical system including
- 3 an aperture at the juncture of the back focal
- 4 plane of said mirror and front focal plane of a
- 5 traditional camera objective, and
- 6 a camera.
- 1 2. The optical system of claim 1, wherein the
- 2 camera includes means for shifting a location of
- 3 an image sensor.
- 1 3. The optical system of claim 1, wherein the
- 2 doubly telecentric optical system includes a
- 3 curved concave mirror or mirror strip as an
- 4 objective element thereof.
- 1 4. The optical system of claim 3, wherein the
- 2 curved concave mirror or mirror strip is
- 3 spherical.
- 5. The optical system of claim 3, wherein the
- 2 curved concave mirror or mirror strip is
- 3 aspherical.
- 1 6. The optical system of claim 3, wherein said
- 2 curved mirror is a mirror strip.
- 7. The optical system of claim 1, wherein the
- 2 camera includes means for shifting a location of
- 3 an image sensor.

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- 1 8. The optical system of claim 1, wherein the location shifting means is of a line scan variety.
- 1 9. The optical system of claim 1, wherein the
- 2 location shifting means is of an area scan
- 3 variety.
- 1 10. An optical system as recited in claim 6,
- 2 wherein said means for shifting a location of said
- 3 image sensor includes means responsive to a
- distance between said objective element and an
- 5 object to be imaged.
- 1 11. The optical system of claim 1, wherein an
- 2 objective lens of said camera is a secondary
- 3 objective of said doubly telecentric optical
- 4 system.
- 1 12. A machine vision controlled system including
- 2 a controllable means for performing a
- 3 function.
- a doubly telecentric optical system having a
- 5 concave mirror as an objective element thereof,
- a camera including means for shifting a
- 7 location of an image sensor, and
- 8 means for processing data derived from said
- 9 image sensor to control said controllable means.
- 1 13. A machine vision system as recited in claim
- 2 12, further including
- means for controlling said means for shifting
- a location of said image sensor responsive to a
- distance between said objective element and an
- 6 object to be imaged.

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- 1 14. A machine vision controllable system according
- 2 to claim 12 wherein the controllable means
- 3 includes an optical character recognition system.
- 1 15. A machine vision controllable system according
- 2 to claim 12, wherein the optical character
- 3 recognition system includes at least one conveyor
- 4 for transporting articles for view by the doubly
- 5 telecentric optical system.
- 1 16. A machine vision controllable system according
- 2 to claim 12, wherein the optical character
- 3 recognition system includes at least one planar
- 4 mirror.
- 1 17. A machine vision controllable system according
- 2 to claim 12, wherein the optical character
- 3 recognition system includes a focus detection
- 4 arrangement.
- 1 18. A sorting method for articles having visible
- 2 information on a face of each said article,
- 3 wherein said articles may be irregularly sized,
- 4 comprising the steps of:
- 5 moving, by automation, each article to a
- doubly telecentric optical system, then imaging
- 7 the visible information on each article.
- 19. The sorting method of Claim 18, wherein said
- visible information is a zip-code.